

WHAT IS CLAIMED IS:

1. A center-tap termination circuit wired on a printed circuit board, the center-tap termination circuit being provided at the end of a differential signal transmission line having a forward transmission line and a return transmission line, comprising:

a first resistor having a resistance of approximately half the differential impedance of the differential signal transmission line, wherein the first resistor is arranged outside the forward transmission line and the return transmission line and adjacent to the forward transmission line, and one end of the first resistor is electrically connected to the forward transmission line;

a second resistor having a resistance of approximately half the differential impedance of the differential signal transmission line, wherein the second resistor is arranged outside the forward transmission line and the return transmission line and adjacent to the return transmission line, and one end of the second resistor is electrically connected to the return transmission line;

a connector electrically connected to the end of the first resistor not connected to the forward transmission line and to the end of the second resistor not connected to the return transmission line, wherein the connector

intersects the forward transmission line and the return transmission line in three-dimensional space; and

a first capacitor arranged outside the forward transmission line and the return transmission line, wherein one end of the first capacitor is electrically connected to the connector, and the end of the first capacitor not connected to the connector is connected to a ground of the printed circuit board,

wherein the forward transmission line and the return transmission line are substantially equidistant from each other.

2. A center-tap termination circuit according to claim 1, wherein the connector comprises a component with a jumper function.

3. A center-tap termination circuit according to claim 1, wherein the first capacitor has a value of greater than or equal to 1000 pF and less than or equal to 100 μ F.

4. A center-tap termination circuit wired on a printed circuit board, the center-tap termination circuit being provided at the end of a differential signal transmission line having a forward transmission line and a return transmission line, comprising:

a first resistor having a resistance of approximately half the differential impedance of the differential signal transmission line, wherein the first resistor is arranged outside the forward transmission line and the return transmission line and adjacent to the forward transmission line, and one end of the first resistor is electrically connected to the forward transmission line;

a second resistor having a resistance of approximately half the differential impedance of the differential signal transmission line, wherein the second resistor is arranged outside the forward transmission line and the return transmission line and adjacent to the return transmission line, and one end of the second resistor is electrically connected to the return transmission line;

a connector electrically connected to the end of the first resistor not connected to the forward transmission line and to the other end of the second resistor not connected to the return transmission line, wherein the connector intersects the forward transmission line and the return transmission line in three-dimensional space;

a first capacitor arranged outside the forward transmission line and the return transmission line, wherein one end of the first capacitor is electrically connected to the connector, and the end of the first capacitor not connected to the connector is connected to a ground of the

printed circuit board; and

a second capacitor having the same capacitance as that of the first capacitor, wherein the second capacitor is arranged outside the forward transmission line and the return transmission line, one end of the second capacitor is electrically connected to the connector, and the end of the second capacitor not connected to the connector is connected to the ground of the printed circuit board,

wherein the first and second resistors and the first and second capacitors are arranged line-symmetrically with respect to the differential signal transmission line, and wherein the forward transmission line and the return transmission line are substantially equidistant from each other.

5. A center-tap termination circuit according to claim 4, wherein the connector comprises a component with a jumper function.

6. A center-tap termination circuit according to claim 4, wherein the first and second capacitors each have a value of greater than or equal to 1000 pF and less than or equal to 100 μ F.

7. A center-tap termination circuit according to claim

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wherein the printed circuit board comprises a multilayer printed circuit board having a plurality of layers;

wherein the differential signal transmission line is provided on a surface layer of the printed circuit board; and

wherein the first capacitor is connected through a first through hole to a ground provided on a wiring layer differing from the surface layer of the printed circuit board; and wherein the second capacitor is connected through a second through hole to the ground provided on the wiring layer differing from the surface layer of the printed circuit board.

8. A center-tap termination circuit according to claim

4,

wherein the printed circuit board comprises a multilayer printed circuit board having a plurality of layers;

wherein the differential signal transmission line is provided on a surface layer of the printed circuit board; and

wherein the connector comprises a wire led through third and fourth through holes to a wiring layer differing

from the surface layer of the printed circuit board.

9. A center-tap termination circuit wired on a printed circuit board, the center-tap termination circuit being provided at the end of a differential signal transmission line having a forward transmission line and a return transmission line, comprising:

a first resistor having a resistance of approximately half the differential impedance of the differential signal transmission line, wherein the first resistor is arranged outside the forward transmission line and the return transmission line and adjacent to the forward transmission line, and one end of the first resistor is electrically connected to the forward transmission line;

a second resistor having a resistance of approximately half the differential impedance of the differential signal transmission line, wherein the second resistor is arranged outside the forward transmission line and the return transmission line and adjacent to the return transmission line, and one end of the second resistor is electrically connected to the return transmission line;

a connector electrically connected to the end of the first resistor not connected to the forward transmission line and to the end of the second resistor not connected to the return transmission line, wherein the connector

intersects the forward transmission line and the return transmission line in three-dimensional space;

a first capacitor arranged outside the forward transmission line and the return transmission line, wherein one end of the first capacitor is electrically connected to the connector;

a second capacitor having the same capacitance as that of the first capacitor, wherein the second capacitor is arranged outside the forward transmission line and the return transmission line, and one end of the second capacitor is electrically connected to the connector;

a third resistor arranged outside the forward transmission line and the return transmission line, wherein one end of the third resistor is electrically connected to the other end of the first capacitor, the end of the third resistor not connected to the first capacitor is electrically connected to a ground of the printed circuit board, and the third resistor has a resistance that is twice the value derived by subtracting half the value of the first or second resistor from the common mode impedance of the differential signal transmission line; and

a fourth resistor having the same resistance as that of the third resistor, wherein the fourth resistor is arranged outside the forward transmission line and the return transmission line, one end of the fourth resistor is

electrically connected to the end the second capacitor not electrically connected to the connector, and the end of the fourth resistor not connected to the second capacitor is electrically connected to the ground of the printed circuit board,

wherein the first and second resistors, the first and second capacitors, and the third and fourth resistors are arranged line-symmetrically with respect to the differential signal transmission line, and

wherein the forward transmission line and the return transmission line are substantially equidistant from each other.

10. A center-tap termination circuit according to claim 9, wherein the connector comprises a component with a jumper function.

11. A center-tap termination circuit according to claim 9, wherein the first capacitor has a value of greater than or equal to 1000 pF and less than or equal to 100 μ F.

12. A center-tap termination circuit wired on a printed circuit board, the center-tap termination circuit being provided at the end of a differential signal transmission line having a forward transmission line and a

return transmission line, comprising:

a first resistor having a resistance of approximately half the differential impedance of the differential signal transmission line, wherein the first resistor is arranged outside the forward transmission line and the return transmission line and adjacent to the forward transmission line, and one end of the first resistor is electrically connected to the forward transmission line;

a second resistor having a resistance of approximately half the differential impedance of the differential signal transmission line, wherein the second resistor is arranged outside the forward transmission line and the return transmission line and adjacent to the return transmission line, and one end of the second resistor is electrically connected to the return transmission line;

a connector electrically connected to the other end of the first resistor and to the other end of the second resistor, wherein the connector intersects the forward transmission line and the return transmission line in three-dimensional space;

a first capacitor arranged outside the forward transmission line and the return transmission line, wherein one end of the first capacitor is electrically connected to the connector; and

a third resistor arranged outside the forward

transmission line and the return transmission line, wherein one end of the third resistor is electrically connected to the end of the first capacitor not connected to the connector, the end of the third resistor not connected to the first capacitor is electrically connected to a ground of the printed circuit board, and the third resistor has a resistance derived by subtracting half the value of the first or second resistor from the common mode impedance of the differential signal transmission line,

wherein the forward transmission line and the return transmission line are substantially equidistant from each other.

13. A printed circuit board comprising:
a transmitting driver integrated circuit (IC);
a receiver IC;
a differential signal transmission line for transmitting and receiving a signal between the transmitting driver IC and the receiver IC, wherein the differential signal transmission line consists of a forward transmission line and a return transmission line, the forward transmission line and the return transmission line being substantially equidistant from each other; and

a center-tap termination circuit provided at the end of the differential signal transmission line, the center-tap

termination circuit comprising:

a first resistor having a resistance of approximately half the differential impedance of the differential signal transmission line, wherein the first resistor is arranged outside the forward transmission line and the return transmission line and adjacent to the forward transmission line, and one end of the first resistor is electrically connected to the forward transmission line;

a second resistor having a resistance of approximately half the differential impedance of the differential signal transmission line, wherein the second resistor is arranged outside the forward transmission line and the return transmission line and adjacent to the return transmission line, and one end of the second resistor is electrically connected to the return transmission line;

a connector electrically connected to the other end of the first resistor and to the other end of the second resistor, wherein the connector intersects the forward transmission line and the return transmission line in three-dimensional space; and

a first capacitor arranged outside the forward transmission line and the return transmission line, wherein one end of the first capacitor is electrically connected to the connector, and the other end of the first capacitor is connected to a ground of the printed circuit board.